

WHAT IS CLAIMED IS:

1 1. An apparatus for routing a line through a vehicle frame tube, the
2 apparatus comprising:
3 a line including an end portion configured to protrude from a side opening
4 through a wall of the vehicle frame tube, the end portion of the line having at an end a fitting
5 for coupling with an external line; and
6 a tube extension configured to be attached to the wall of the vehicle frame tube
7 around the side opening and to surround the end portion of the line, the tube extension being
8 coupled with the fitting at the end of the line.

1 2. The apparatus of claim 1 wherein the fitting comprises a male thread.

1 3. The apparatus of claim 1 wherein the fitting comprises a female thread.

1 4. The apparatus of claim 3 wherein the fitting comprises a freely
2 spinning compression fitting.

1 5. The apparatus of claim 1 wherein the end of the fitting comprises a
2 flared end coupled with the fitting.

1 6. The apparatus of claim 1 wherein the fitting comprises a compression
2 fitting affixed to the end of the line.

1 7. The apparatus of claim 1 wherein the tube extension is affixed to the
2 fitting at the end of the line.

1 8. The apparatus of claim 1 wherein the tube extension comprises two
2 longitudinal tube sections which are joined together.

1 9. The apparatus of claim 8 wherein the two longitudinal tube sections
2 are welded together to form the tube extension and are configured to be welded to the wall of
3 the vehicle frame tube around the side opening.

1 10. An apparatus for routing a line through a vehicle frame tube, the
2 apparatus comprising:

3 a line including two end portions each configured to protrude from a side
4 opening through a wall of the vehicle frame tube, each end portion of the line having at an
5 end a fitting for coupling with an external line; and

6 a pair of tube extensions each configured to be attached to the wall of the
7 vehicle frame tube around one of the side openings and to surround the end portion of the
8 line, the tube extension being coupled with the fitting at the end of the line.

1 11. The apparatus of claim 10 wherein each fitting comprises a
2 compression fitting affixed to the end of the line.

1 12. The apparatus of claim 10 wherein each tube extension comprises two
2 longitudinal tube sections which are joined together to form the tube extension and are
3 configured to be joined to the wall of the vehicle frame tube around the side opening.

4 13. A method for routing a line through a vehicle frame tube, the method
5 comprising:

6 placing a line inside the vehicle frame tube and positioning an end portion of
7 the line to protrude from a side opening through a wall of the vehicle frame tube;

8 providing at the end of the protruded end portion of the line a fitting for
9 coupling with an external line; and

1 attaching a tube extension to the wall of the vehicle frame tube around the side
2 opening to surround the end portion of the line and to couple with the fitting at the end of the
3 line.

4 14. The method of claim 13 wherein the fitting comprises a freely spinning
5 compression fitting.

6 15. The method of claim 13 wherein providing the fitting comprises
7 affixing a compression fitting to the end of the line.

8 16. The method of claim 13 wherein attaching the tube extension
9 comprises affixing the tube extension to the fitting at the end of the line.

1 17. The method of claim 13 further comprising forming a flare at the end
2 of the line to couple with the fitting.

